

Continuous preparation of a compound which bears at least two functional groups

Abstract

- 5 A process for continuously preparing a compound which bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group, comprising the steps of
- 10 a) adding two terminal olefins which bear the functional groups required to prepare the compound as per a1) containing at least two functional groups, in the presence of a compound as per a3) which is suitable as a catalyst for this addition and is homogeneous with respect to the reaction mixture to obtain a mixture comprising
- 15 a1) a compound which is obtained by monoaddition of the two terminal olefins mentioned and bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group,
- 20 a2) a compound which is obtained by polyaddition of the two terminal olefins mentioned and
- a3) the compound which is suitable as a catalyst for this addition and is homogeneous with respect to the reaction mixture,
- b) distilling the mixture obtained in step a) to obtain
- 25 b1) the compound which is obtained by monoaddition of the two terminal olefins mentioned and bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group, as the top product and
- b2) a mixture comprising
- 30 b2a) a compound which is obtained by monoaddition of the two terminal olefins mentioned and bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group,
- b2b) a compound which is obtained by polyaddition of the two terminal olefins
- 35 mentioned and
- b2c) the compound which is suitable as a catalyst for this addition and is homogeneous with respect to the reaction mixture,

- 5 c) separating the entire mixture obtained in step b2) or a portion thereof by means of a semipermeable membrane to obtain a permeate and a retentate, in such a way that the weight ratio of component b2b) to component b2c) in the mixture b2) fed in step c) is smaller than in the retentate,
- d) recycling the permeate obtained in step b2) partly or fully into step a)
- 10 and
- e) recycling the portion of the mixture obtained in step b2) which has not been separated in c) partly or fully into step a).